REMARKS

I. Status of the Claims

Claims 1-19 are pending. Claim 1 is amended in this response. Upon entry of the amendment, claims 1-19 will remain for consideration.

II. Claim Amendment

Applicant has amended claim 1 to recite "high density" polyethylene. Support for the amendment comes from the Detailed Description of the Invention wherein the polyethylene employed is specified as high density polyethylene (HDPE) (see p. 3, ll. 10-14), and Examples 1-22 which all employ HDPE.

III. Response to the Rejections under 35 U.S.C. § 102(b)

(a) Response to Rejection of Claims 1-5 and 14-19 over Harbourne

Applicant traverses the rejection of claims 1-5 and 14-19 as anticipated by Harbourne (U.S. Pat. No. 4,226,905), and he respectfully asks the Examiner to reconsider and withdraw the rejection in view of the following remarks.

Harbourne teaches a method for manufacturing polyethylene (PE) film. The method uses partially cross-linked PE and a blown film process. Harbourne teaches to use an "MD draw down ratio" in the range of 2 to 60 (see Abstract). Missing from Harbourne is any teaching or disclosure to stretch or otherwise modify the film after it has been blown.

In contrast, Applicant's invention is a method for producing polyethylene film having a high modulus. The method comprises orienting in the machine direction (MD) a previously blown high density polyethylene (HDPE) film to a draw-down ratio of greater than 10:1. The oriented film has a 1% secant MD modulus of 1,000,000 psi or greater.

The Examiner asserts that Harbourne anticipates the Applicant's invention because Harbourne teaches to orient a polyethylene film in the machine direction to a draw-down ratio of 40:1. Harbourne does not anticipate the present invention because Harbourne does not disclose a method for orienting an already-blown film, while Applicant's claims require "orienting in the machine direction (MD) a high density blown film." (Emphasis added). In particular, Harbourne and Applicant define "draw-down ratio" differently.

Harbourne defines MD draw-down ratio as "the ratio of the width of the die gap of the annular die to the product of the blow-up ratio and the thickness of the film" (see col. 1, ll. 29-32). Thus, using Harbourne's formula and the films produced in Table 1, the calculated MD draw-down ratio would be 1.016 mm/(0.0254 mm x BUR), where BUR is the blow-up ratio reported in the table (i.e. 3 for Examples 1-9, 14, and 15, and 2 for Examples 10-13), which gives an MD draw down ratio of either 1.016/(0.0254 x 3) = 13 or 1.016/(0.0254 x 2) = 20 rather than 40 as the Examiner suggests. Either way, the ratio would exceed Applicant's lower limit of 10.

Importantly, however, Applicant defines draw-down ratio differently, so any comparison of these number ranges is meaningless. In the Applicant's case, draw-down ratio is defined as "the ratio of the film thickness before and after orientation" (see p. 5, ll. 20-21). Therefore, the ratio in Harbourne compares the size of the die gap to the product of film thickness and blow-up ratio whereas Applicant's ratio compares thickness of an already blown film before and after uniaxial stretching in the machine direction. A skilled person appreciates that the ratios are not comparable. In fact, if the Applicant's definition of draw-down ratio were applied to Harbourne's films the ratio would be zero, because Harbourne's films are not further modified after being blown. It is well established that a patentee "may be his own lexicographer" so long as his meanings are clear and consistent. *Chicago Steel Foundry Co. V. Burnside Steel Foundry Co.*;132 F.2d 812, 56 USPQ 238 (7th Cir. 1943). In sum, due to the difference in the definition

of "draw-down" ratio, Harbourne fails to anticipate Applicant's claimed orientation method and oriented films.

The Examiner further asserts that since the method is met in the reference, the claimed modulus values are inherent. Applicant respectfully submits that the method is not met for reasons of record. Harbourne teaches a method for making a blown film, while Applicant claims a method of orienting an already blown film in the machine direction.

Because the methods differ, the modulus values are not inherent. "Inherency... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). A person of ordinary skill in the art would readily appreciate that an oriented film will most likely have a different modulus value than a film that has not been oriented.

The Examiner says that Applicant's product-by-process claims (6-19) must distinguish structurally over the prior art. These claims do distinguish because they require the limits of claim 1, i.e., they require orienting a film in the machine direction. Harbourne does not teach machine direction orientation or any manipulation of the film after it is blown. One of ordinary skill in the art would appreciate that a film which has been machine direction oriented after it has been blown is a different product than a film which is merely blown. For the reasons outlined above, the Examiner should reconsider and withdraw the § 102 rejection based on Harbourne.

Additionally, Applicant's method would not have been obvious from Harbourne. A person of ordinary skill would not be motivated to orient in the machine direction the already blown film Harbourne teaches at the high draw down ratios the Applicant's claims require because Harbourne considered such films to be suitable for their intended use without further modification. Any

suggestion to further modify the film could only have come from Applicant's own disclosure.

(b) Response to Rejection of Claims 1, 2, and 14-19 over Erderly et al.

Applicant traverses the rejection of claims 1, 2 and 14-19 under 35 U.S.C. § 102(b) as anticipated by Erderly et al. (U.S. Pat. No. 5,451,450), and he respectfully asks the Examiner to reconsider and withdraw the rejection in view of his amendment and the following remarks.

Erderly et al. discloses a method of making a blown, cast or cast embossed elastic film. The ethylene polymers useful in Erderly et al.'s invention incorporate a C_3-C_{20} α-olefin or polyene, and they are plastomers that have a density in the range of 0.855-0.900 g/cm^3 (col. 2, ll. 51-60). Erderly et al. discloses producing film from the plastomers using a draw-down ratio between 2:1 and 100:1 (col. 8, l. 68 to col. 9, l. 3).

The Examiner asserts that "Erderly is being applied for the same reasons as Harbourne... with respect to the instant method and film claims." Applicant respectfully submits that Erderly et al. fails to anticipate Applicant's claims for essentially the same reasons discussed in Harbourne. In particular, Erderly et al. defines draw-down ratio as the ratio of the die gap width to the total film thickness, i.e., the thickness of the blown film (col. 8, ll. 65-68). In contrast, Applicant compares thickness of an already blown film before and after uniaxial stretching in the machine direction.

Because Erderly et al. and Applicant define draw-down ratio differently, Erderly et al. cannot anticipate Applicant's claimed range. Applying Applicant's definition of draw-down ratio to Erderly et al.'s films results in a draw-down ratio of zero because Erderly et al.'s films are not oriented after being blown. As in Harbourne, Erderly et al. does not disclose a method for orienting an already blown high-density polyethylene film, which Applicant's claims require.

Erderly et al. addresses orienting films generally (col. 9, l. 27-32), but does not discuss draw-down ratio in the context of orienting films. A skilled person therefore infers that conventional draw-down ratios (i.e., much less than 10:1) would be used if the films were actually oriented. In contrast, Applicant exclusively claims orientation "to a draw-down ratio greater than 10:1" for pre and post oriented films.

As amended, Applicant's claims require orientation of high density polyethylene film, while the only suitable ethylene polymers of Erderly et al. are plastomers that incorporate a C_3-C_{20} α-olefin or polyene and have a density from 0.855-0.900 g/cm^3 (see col. 6, ll. 43-45). According to Applicant's specification, HDPE has a density of 0.941 g/cm^3 or greater (page 1, ll. 9-10). Because Applicant's claims as amended exclude ethylene polymers having densities less than 0.94 g/cm^3, Erderly et al., which requires ethylene copolymers of much lower densities, fails to anticipate the claims.

The Examiner asserts that because Erderly et al. teaches Applicant's claimed method the modulus property of the film is inherent. However, the claimed method is not met for reasons of record. Moreover, Erderly et al. discloses films made from plastomers having a density in the range of 0.865 g/cm^3 to less than about 0.900 g/cm^3 (col. 8, ll. 59-66). The Applicant claims a film made from HDPE with a density between 0.950 to 0.970 g/cm^3 (see amended claim 1). The modulus values cannot be inherent because one of ordinary skill in the art would readily appreciate that a film made from a plastomer has a very different modulus value than that of a film made from HDPE. For the reasons outlined above, the Examiner should reconsider and withdraw the § 102 rejection based on Erderly et al.

Additionally, Applicant's invention would not have been obvious from Erderly et al. A skilled person would not have altered Erderly et al.'s teachings by using HDPE (density 0.95 – 0.97 g/cm^3), as Applicant's claims require, instead of plastomers, which have substantial comonomer incorporation, lower densities

(0.865-9.00 g/cm^3), and different degrees of elasticity. Moreover, the skilled person has no incentive to further modify Erderly et al.'s teachings by orienting films only in the machine direction and only at the unusually high draw-down ratios (greater than 10) that Applicant's claims require. Any suggestion to stretch an HDPE film to such a high draw-down ratio could only have come from Applicant's own disclosure.

IV. Response to the Rejections under 35 U.S.C. § 103

Applicant traverses the rejection of claims 6-13 and 19 under 35 U.S.C. § 103(a) as unpatentable over Harbourne (U.S. Pat. No. 4,226,905) and respectfully asks the Examiner to reconsider and withdraw the rejection in view of the following remarks.

The Examiner asserts that claims 6-13 and 19 are "unpatentable over Harbourne, which teaches the basic claimed method and film." If Harbourne had taught Applicant's claimed method or films, the molecular weights might have been inconsequential. However, for reasons of record, Applicant submits that Harbourne does not teach the claimed method or films. Claims 6-13 and 19 all incorporate the limits of claim 1. If claim 1 is patentable, then all claims that depend from claim 1 are also patentable. The Examiner should withdraw the rejection.

Applicant traverses the rejection of claims 6-15 and 17-19 under 35 U.S.C. § 103(a) as unpatentable over Erderly et al. (U.S. Pat. No. 5,451,450) and respectfully asks the Examiner to reconsider and withdraw the rejection in view of the following remarks.

The Examiner also asserts that Erderly et al. teaches the basic claimed method and film. As explained earlier, however, Erderly et al. does not teach or suggest the same claimed method or films and only discusses machine orientation generally. Claims 3-15 and 17-19 depend from claim 1. Claim 1 is

patentable for reasons already provided, therefore claims 3-15 and 17-19 must also be patentable. The Examiner should withdraw the rejection.

V. Conclusion

In view of the above remarks, Applicant respectfully asks the Examiner to reconsider and withdraw the rejections under 35 U.S.C. § 102(b) and § 103(a) and pass the case to issue.

Respectfully submitted,

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